IN THE CLAIMS

1. (Previously Presented) A method for reducing interference in a communication device comprising:

providing a communication device having first and second antenna elements and a radio frequency combiner to combine outputs of said first and second antenna elements, said first antenna element having an adjustable weight;

said communication device further having a single radio frequency (RF) receiver path to receive the combined outputs and produce a baseband communications signal;

determining individual channel responses for said first and second antenna elements for each of a plurality of base stations of interest at the baseband communication signal; and

determining a weight for said first antenna element that optimizes an interference-related quality criterion based on said individual channel responses using phased array principles to direct a receive beam.

2. (Original) The method of claim 1 wherein:

said communication device includes more than two antenna elements, wherein said combiner combines the outputs of said more than two antenna elements.

3. (Original) The method of claim 1 wherein determining individual channel responses includes:

applying a predetermined weight to said first antenna element;

estimating a combined channel response for a channel between a first base station of interest and an output of said combiner while said predetermined weight is being applied; and

calculating an individual channel response for a channel between said first base station of interest and said first antenna element using said estimated combined channel response.

4. (Original) The method of claim 3 wherein:

calculating an individual channel response includes determining a weight previously applied to said first antenna element and using said previously applied weight to calculate said individual channel response.

5. (Original) The method of claim 1 wherein:

said weight is a complex weight having a magnitude-related component and a phase-related component.

6. (Original) The method of claim 1 wherein:

said interference-related quality criterion includes a signal to interference and noise ratio (SINR).

7. (Original) The method of claim 1 wherein:

said interference-related quality criterion includes a bit error rate (BER).

8. (Original) The method of claim 1 wherein:

said interference-related quality criterion includes a mean square error (MSE).

9. (Original) The method of claim 1 wherein:

determining a weight includes selecting a weight from a predefined set of possible weights.

10. (Previously Presented) A method for reducing interference in a communication device comprising:

providing a communication device having first and second antenna elements, said first antenna element having an adjustable weight;

applying a predetermined weight to said first antenna element;

combining the RF outputs of the first and second antenna elements;

converting the combined RF outputs to produce a baseband signal;

estimating a combined channel response for said first and second antenna elements at the baseband signal while said predetermined weight is being applied for a first base station of interest;

calculating individual channel responses for channels between said first and second antenna elements and said first base station of interest using said estimated combined channel response; and

determining a new weight for said first antenna element that enhances an interference-related quality criterion using said individual channel responses to allow beam steering.

11. (Original) The method of claim 10 comprising:

repeating estimating a combined channel response and calculating individual channel responses for each of a plurality of base stations of interest.

12. (Original) The method of claim 10 wherein:

estimating a combined channel response includes identifying and using a pilot signal received from said first base station of interest.

13. (Original) The method of claim 10 wherein:

applying a predetermined weight includes forcing a magnitude associated with said first antenna element to zero.

14. (Original) The method of claim 10 wherein:

said interference-related quality criterion includes a signal to interference and noise ratio (SINR).

15. (Previously Presented) A method for reducing interference in a communication device comprising:

providing a communication device having first and second antenna elements, said first antenna element having an adjustable weight;

applying a predetermined weight to said first antenna element during a present time period;

combining the RF outputs of the first and second antenna elements;

converting the combined RF outputs to produce a baseband signal;

estimating a combined channel response for said first and second antenna elements from the baseband signal while said predetermined weight is being applied for a first base station of interest;

calculating individual channel responses for channels between each of said first and second antenna elements and said first base station of interest for said present time period using said combined channel response;

determining a new weight for said first antenna element for said present time period that enhances an interference-related quality criterion using said individual channel responses; and

applying said new weight to said first antenna element during said present time period to allow beam steering of the antenna elements.

16. (Original) The method of claim 15 comprising:

repeating estimating a combined channel response and calculating individual channel responses for each of a plurality of base stations of interest before determining said new weight.

17. (Original) The method of claim 15 wherein:

calculating individual channel responses includes using antenna weight information from a previous time period.

18. (Original) The method of claim 15 wherein:

calculating individual channel responses includes using combined channel response information from a previous time period.

19. (Original) The method of claim 15 wherein:

calculating individual channel responses includes solving M equations in M unknowns, where M is an integer greater than 1.

20. (Original) The method of claim 15 wherein:

calculating individual channel responses includes solving the following system of equations for $C_1(t=nT)$:

$$\begin{cases} h_1(t) = \widetilde{W}C_1(t) & t \in [nT, nT+\tau] \\ h_1(t) = W_{(n-1)T}C_1(t) & t \in [(n-1)T+\tau, nT) \end{cases}$$

where $h_1(t)$ is the estimated combined channel response for the first base station of interest at time t, $W_{(n-1)T}$ is the calculated vector gain of the antenna elements during previous period [(n-1)T+τ , nT), $C_1(t)$ is the matrix channel response of the first base station of interest for each of the antenna elements at time t, and $\widetilde{W}$ is the vector gain of the antennas using the predetermined weight.

21. (Original) The method of claim 15 wherein:

said interference-related quality criterion includes a signal to interference and noise ratio (SINR).

22. (Original) The method of claim 15 further comprising:

repeating applying a predetermined weight, estimating a combined channel response, calculating individual channel responses, determining a new weight, and applying said new weight for a subsequent time period.

23. (Previously Presented) A communication device comprising:

first and second antenna elements, said first antenna element having an adjustable weight to allow receive beam steering;

a radio frequency combiner to combine outputs of said first and second antenna elements to generate a combined signal;

a single RF receiver path to convert the combined outputs of said first and second antenna elements to produce a baseband signal; and

a controller connected to receive the baseband signal and to control said adjustable weight of said first antenna element, said controller including:

a first unit to determine individual channel responses for said first and second antenna elements for each of a plurality of base stations of interest; and

a second unit to determine a weight for said first antenna element that optimizes an interference-related quality criterion using the individual channel responses.

24. (Original) The communication device of claim 23 comprising:

at least one additional antenna element, wherein said combiner combines outputs of said first antenna element, said second antenna element, and said at least one additional antenna element to generate said combined signal and wherein said first unit determines individual channel responses for said first antenna element, said second antenna element, and said at least one additional antenna element for each of the base stations of interest.

25. (Original) The communication device of claim 23 wherein:

said controller repeatedly updates said weight of said first antenna element.

26. (Original) The communication device of claim 25 wherein:

said controller updates said weight of said first antenna element at intervals that depend upon a Doppler rate associated with said communication device.

27. (Original) The communication device of claim 23 wherein:

said interference-related quality criterion includes a signal to interference and noise ratio (SINR).

28. (Original) The communication device of claim 23 wherein:

said first unit regularly applies a predetermined weight to said first antenna element for use in determining said individual channel responses.

29. (Original) The communication device of claim 23 wherein:

said first unit determines said individual channel responses for said first and second antenna elements using a combined channel response for said first and second antenna elements for each base station of interest.